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ALLIANCE FORMATION
A Study of the Malaysian Automobile Supporting Industry

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Competition in global industries is shifting increasingly from inter-firm rivalry to rivalry between networks of firms. Strategies of individual firms are thus contingent on the degree of interdependence that exists between them and the parent firm in the network. The present study examines the effect of network affiliation on a member firm's decision to enter a foreign market and international strategic alliance formation. Affiliate firms have two options available to them: (1) enter into a competitive strategic alliance with a competitor or (2) enter into a symbiotic strategic alliance with the parent firm of the network organization. We tested this assertion using data from archival sources on sixty-five Japanese automobile suppliers that had set up strategic alliances in Malaysia and that belonged to various inter-organizational networks. Results indicate that when affiliate firms are dependent on the parent firm, they prefer to form symbiotic strategic alliances. Conversely, affiliate firms prefer competitive strategic alliances with competitors when they are not dependent on the parent firm.

Keywords: automobile industry; joint venture; mode of entry; networks; strategic alliances

Introduction

International Strategic alliances have become an extremely popular mode of entry into new foreign markets for a variety of reasons. It enables a firm to enter new and difficult markets in a quick manner, overcome ownership restrictions, lower risk, minimize global competition, provide an opportunity to learn, and often acquire the alliance partner's skills and capabilities (Inkpen 2006). Of the various modes of entry available to a firm expanding into a foreign market, strategic alliances have become increasingly popular because they are often an efficient way of handling environmental uncertainty at a foreign location (Beamish and Banks 2007), and often they outperform entry via acquisitions (Woodcock et al. 2004). Similar to a joint venture, any strategic alliance is a declaration of mutual trust between the alliance partners (Madhok 2005); hence, appropriate partner selection is of extreme importance. The choice and nationality of the partner selected depend on the motives for forming the strategic alliance; both are critical for the stability and performance of the venture as well as for the control and conflict issues that often surface (Parkhe 2001, 2003).

Much of the literature on mode of entry, strategic alliance formation, and partner selection, has examined the individual firm as the unit of analysis and has assumed that the mode-of entry decision is made by an individual firm on its own (Anderson and Gatignon 2006). This assumption is valid only if one takes a traditional view of the firm, which states that a firm is normally regarded as a "complete entity," operating in an environment that is defined implicitly as "everything that is not the firm" (Jarillo 2008). This view of the firm is extremely narrow and neglects a consideration of the firm as an entity embedded in a social network with strong interdependencies (Granovetter 2005; Ghoshal and Bartlett 2001). The increased presence of the network form of organization forces us to view the individual firm not as a fully independent decision-making entity but as a semi-autonomous body, many of whose decisions are influenced by its network members (Powell 2000). Hence, the choice of mode of entry into a foreign market should not be viewed as an isolated decision but as a manifestation of the strategic posture of both the firm (Hill et al. 2000) and the network to which it belongs.

The emergence of the network organization, as an alternative to market or hierarchical organizations (Williamson 2005; Provan and Gassenheimer 2004) forces us to revalidate our theories in terms of the emerging forms of new organizations. Increasing globalization in many industries is also causing the competitive rivalry to shift from inter-firm rivalry to inter-group rivalry (Gomes-Casseres 2004), resulting in network members coordinating their strategic actions in the market place to gain competitive advantages for network firms and the entire group. The global success of the

Japanese automobile producers has created an "isomorphic effect" (DiMaggio and Powell 2003) in many manufacturing industries and prompted several North American and European companies to develop supplier networks along Japanese lines (Turnbull et al. 2002; Helper and Soko 2005). The establishment during the 1980s of a manufacturing base in Asia by such leading Japanese automobile companies such as Toyota, Honda, Mitsubishi, Nissan and others have led to the re-creation of their supply networks in Asia (Martin et al. 1995; Banerji and Sambharya 1996).

This movement toward the network form of organization enhances the importance of investigating the effects of the Japanese corporate network forms (known as *keiretsu*) on formation of strategic alliances and partner selection by its member firms. A considerable volume of literature exists concerning the causes of joint venture formation (Contractor and Lorange 1988; Harrigan 1988; Kogut 1988; Gomes-Casseres 1989; Parkhe 1991), yet surprisingly little is known about how networks influence strategic alliance formation particularly in South East Asia. This study focuses on a network of organizations and the effect of that network on strategic alliance formation and partner selection decisions of firms that are members of that particular network in Malaysia.

Based on the Pfeffer and Nowak (1976) framework of joint venture formation, this study identifies two alternate types of strategic alliance venture: competitive strategic alliances (CSAs) and symbiotic strategic alliances (SSAs). Focusing on the resource dependencies between firms that compose an organizational network, this study proposes and tests hypotheses concerning the circumstances under which each of these two types of strategic alliance is likely to be formed. Hypotheses are tested against data collected from Japanese automobile supporting companies that have established manufacturing facilities in Malaysia via strategic alliance formations between 2006 and 2009. This period was chosen because there was a large influx of Japanese automobile ancillary manufacturers into Malaysia during this period (MIDA 2009). There follows a brief description of Japanese corporate structure and *keiretsu* and an ensuing discussion on strategic alliance formation in the context of network.

Japanese Automobile Industry and Network Relationships

The emergence of the network organization in the last couple of decades has changed the dynamics of global competition. Instead of firms competing against other firms, groups of firms or a network of firms competes against other networks (Gomes-Casseres 2004). In a network organization, individual firms exist in relation to other firms in that network. Inter-firm relationships in a network take considerable effort to establish and sustain; thus, they need network mem-

bers' to have the ability to adapt to changing circumstances. Within a network, it is more prudent to settle differences by persuasion and negotiations than by termination of the relationship. Repeated exchanges and alliances between the network members also generate a high level of inter-firm trust, which makes it easier for network members to transact business with other firms in the same network rather than with firms that are outside the network (Gulati 2005). The network members share the benefits and burdens of working together, and their expectations about each other are well understood by the relevant parties. A mutual orientation is established through knowledge that the parties assume each has about the other and upon which they draw in communicating with each other and in problem solving (Powell 2000). In a network, despite a loss of autonomy, organizations develop and maintain relations with each other as a way of reducing uncertainty and attracting scarce resources (Provan 2004).

Inter-organizational networks known as a *keiretsu* characterize most Japanese industries. A *keiretsu* is defined as a group of interrelated organizations that have cross-ownership, joint shareholdings, common trademarks, involves in commodity transactions, and bank loans between themselves (Gerlach 2002; Orru et al. 1999). There are various types of *keiretsu* that may be divided into three broad categories based on their relational structure (Gerlach 2002): (1) corporate groups, (2) financial centrality, and (3) industrial interdependence. The automobile industry in Japan is organized on the lines of industrial interdependence, which is popularly known as a vertical *keiretsu*. In a vertical *keiretsu*, member firms have a high level of coordination in order to manage their nonfinancial resource flows (Gerlach 2002) to create a "stable collective structure of coordinated action" (Pfeffer and Salancik 1978:161). The objective of a vertical *keiretsu* is to guarantee a mutually beneficial, self-sufficient structure for the lead firm and its affiliates. The member firms of the vertical *keiretsu* essentially belong to the same industry but perform different functions along the industry's value-added chain (Gittelman et al. 2002). Most vertical *keiretsu* have a large central core firm that is linked vertically to many subordinate companies (Orru et al. 1999).

The firms in a *keiretsu*-type network may be categorized into two groups namely core firms and affiliate firms (Jarillo 2008). A core firm is the focal organization in the *keiretsu* network; it sets up the *keiretsu* and takes a proactive role in the care of it. Affiliate firms become a part of the *keiretsu* either by mutating from the core firm (Ito and Rose 2004) or by choosing to be part of the network after having an increasing number of favorable transactions with the core firm (Banerji 2002). Affiliate firms usually play a secondary role in the *keiretsu* and mainly provide a continual flow of resources to the core firm to support the latter's activities. In many networks,

the core firm is generally a large manufacturing organization, whereas affiliate firms are smaller organizations whose major role is to supply the core firm with necessary products and services (Thorelli 2006). Research indicates that when a core firm in the *keiretsu* establishes a manufacturing presence in a foreign country, many of its subordinate affiliate firms follow it into that market and establish their own manufacturing facilities (Florida and Kenney 2001; Martin et al. 2005). In this study, Japanese automobile manufacturers have been labeled as core firms and Japanese auto ancillary suppliers as affiliate firms.

Strategic Alliance Formation and Networks

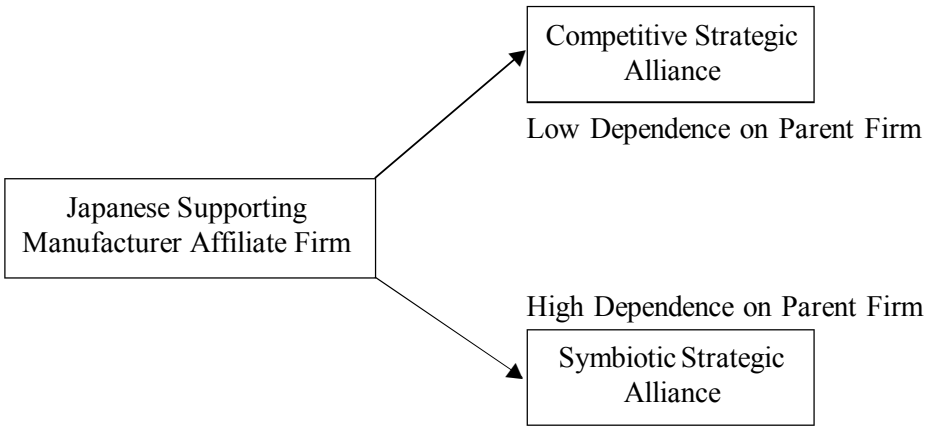
Most strategic alliances may be categorized as one of two broad groups, based on the type of interdependence that exists between the activities of the parent firm in the venture and the affiliate firm. According to Pfeffer and Nowak (2006), the interdependence between two or more organizations may be competitive or symbiotic. When two organizations are producing similar products and services for similar markets, they are said to have competitive interdependence; for example, two automobile manufacturers whose products are sold in the same geographic market are said to have competitive interdependence. When two organizations have products that are vertically related in the production chain, they are said to have symbiotic interdependence as for example in the relationship between automobile producers and ancillary manufacturers. Hence competitive interdependence exists on a horizontal level among like organizations, while symbiotic interdependence exists between organizations "vertically related in the production process" (Pfeffer and Nowak 2006).

A possible explanation for many strategic alliance activities is an organization's response to these two forms of interdependence. Most cooperative ventures are formed to reduce demand or to reduce competitive uncertainty (Burgers et al. 2003), and to create opportunities to learn (Hamel 2001; Inkpen 2006). Key objectives for forming a strategic alliance between two organizations with competitive interdependence are to overcome the effects of competition (Pate 2009) and to learn from each other (Hamel 2001; Inkpen 2006). On the other hand, a key objective in cases of symbiotic interdependence is to reduce the uncertainty related to resource acquisition (Pfeffer and Nowak 2006).

In a network situation, these two types of strategic alliance have different implications for the member firms. In most cases of symbiotic strategic alliances, the automobile producer has more opportunities to control the supporting manufacturer. A symbiotic strategic alliance is likely to occur between the automobile producer and the supporting manufacturer because these two types of firm usually have a buyer-supplier relationship.

In contrast, a competitive strategic alliance is likely to occur between a

Figure 1. **Conceptual Framework: The Choices of Strategic Alliances that Can Be Made by Affiliate Firm in a Network Relative to the Level of Its Interdependence on the Parent Firm**



member firm and a non-network firm that is located in the targeted foreign market. A competitive strategic alliance with a local firm from the foreign market usually eases the entry of a network member firm into that market by providing the latter with the required market intelligence. However, in the case of a competitive strategic alliance, the supporting manufacturer is an equal partner in the strategic alliance with the non-network supporting manufacturer from the host country, sharing the day-to-day knowledge of affiliate activities and participating equally in decision making processes. Harrigan (2008) found that joint ventures that were formed by horizontally related firms were on the increase, particularly in the automobile industry, and were more likely to be judged a success by both sponsoring firms. Keeping in view the implications of these two types of strategic alliance and their differences, this study categorizes them as two different modes of entry (see Fiure 1). Hence, the hypotheses are developed and empirically tested based on two types of entry mode: competitive strategic alliances and symbiotic strategic alliances.

Hypotheses

In a study of the entire population of first-tier suppliers, Banerji and Sambharya (2006) found that small Japanese firms are likely to enter international markets in the automobile industry. These firms may lack the technology and are more likely to form cooperative ventures with a foreign partner (Shan and Hamilton 2001) compared with larger Japanese firms. The decision whether to form a strategic alli-

ance with a foreign partner, particularly in the automobile industry, is frequently influenced by the membership status of the Japanese automobile ancillary manufacturer in one or more vertical *keiretsu* and the resulting interdependencies that develop in a vertical *keiretsu*.

Because there are strong interdependencies in a vertical *keiretsu*, resource dependency theory (Cook 1997; Pfeffer and Salancik 1998) provides a useful theoretical framework to explain what type of strategic alliance a Japanese supporting supplier firm is likely to form. The essence of resource dependence theory is that in a business relationship, dependencies are created between the exchange partners, and such dependencies often enable the exchange partners to influence each other's behavior and profitability (Emerson 1992; Cook 1997; Pfeffer and Salancik 1998). According to resource dependency theory, organizations exercise some degree of control or influence over the resource environment or the firm's exchange partners for the purpose of relationship stability. This stability can be attained through the exercise of power, control, or the negotiation of interdependencies toward the reducing of environmental uncertainty and a predictable flow of resources (Oliver 2001). Researchers have applied resource dependency theory to joint ventures (Greening and Gray 2004; Yan and Gray 2004). A few studies have used resource dependence theory to explain *keiretsu* (Lincoln et al. 2002; Handfeld 2003; Banerji and Sambharya 2006).

In a *keiretsu*, a core firm is often dependent on an affiliate firm for a critical resource that may form the basis of a distinctive competence for the core firm. Often, this critical resource may be a raw material, a subassembly, or a particular service that the core firm is unable to procure at the new location in the foreign market or for which the cost of procurement is extremely high, or for which the quality of the resources available is not good. In such a situation, the core firm will want the affiliate firm supplying such critical resources to enter the same foreign market as the core firm and continue to supply those resources (Martin et al. 2005; Banerji and Sambharya 2006) so that the core firm can transfer its competitive advantages to the foreign market for continued successful operations (Hu 2005). The dependence of the core firm on an affiliate firm increases when the resource received from an affiliate firm is critical for the output of the core firm (Pfeffer and Salancik 1998). In this context "criticality measures the ability of the organization to continue functioning in the absence of the resources," supplied by the affiliate firm (Pfeffer and Salancik 1998).

The dependence of the core firm on an affiliate firm is also determined by the variety of resources received by the core firm from a particular affiliate firm. In cases in which the core firm receives only one type of resource from an affiliate firm, the dependence

of the core firm is determined based only on that resource. In cases in which the core firm receives several resources from an affiliate, the dependence of the core firm on that affiliate firm is determined by all the resource exchanges taken collectively. However, the two basic tenets of criticality of resource and lack of alternative sources for that resource need to be present for the whole variety of resources being exchanged between a core and an affiliate firm.

When an affiliate firm sets up production facilities in a foreign market, it has a "liability of foreignness" (Zaheer 2005) and faces a great deal of environmental uncertainty for both acquisition of resources and selling of output. Hence, it needs the support of the core firm in that foreign market. The affiliate firm may get this support from the core firm in two ways. *First*, it may enter into a strategic alliance with the core firm and thereby assure itself of the core firm's support. *Second*, if the core firm is dependent on the affiliate firm for supply of critical resources, then it will provide the affiliate firm with all the support the affiliate needs so that the core firm is assured a continual flow of critical resources from that affiliate firm.

When a core firm is dependent on an affiliate firm for critical resources, the affiliate firm will not be interested in a symbiotic strategic alliance with the core firm, because in such an alliance it has to share with the core firm control of its activities in that foreign market. The very dependence of the core firm on the affiliate firm will assure it of the core firm's support. On the contrary, the affiliate firm will be more interested in entering into a strategic alliance with a local firm in the foreign market as it reduces competitive uncertainty and provides an opportunity to learn quickly the intricacies of the host country market from its local partner. To the local firms in the host country, the affiliate firm may be a very lucrative partner, because the latter often has firm-specific strategic advantages (Kimura 2009) and intimate knowledge of the true requirements of the core firm. Also, such a venture often deflects protectionist sentiments in the foreign market (Reich and Mankin 2006; Yoshida 2007). It may also reduce the competition faced by the affiliate firm in the foreign market in selling its products to firms other than the core firm. When a number of other firms also enter the same foreign market, the support from the competitive strategic alliance partner may be critical for the survival of the affiliate firm in the foreign country (Shaver 2005). Through its alliance partner, the affiliate firm will be able to access a new group of customers who had previous dealings with the alliance partner of the affiliate firm. The alliance partner will be able to provide the affiliate firm with the necessary market knowledge to succeed in that foreign market (Hamel and Prahalad 1999). These types of cross-border cooperative strategy are very effective for entering into new geo-

graphical markets (Bleeke and Ernest 2001), because they also reduce the transaction cost of developing a new market (Hennart 2001).

By and large, research on strategic alliances suggests that learning is a primary objective of firms entering into strategic alliances. An affiliate firm will maximize its potential by swapping its technological expertise for marketing and distribution advantages offered by competitors in this type of cooperative venture (Buckley and Casson 2006). Inkpen (2006), in a case study of five international joint ventures established in the United States between U.S. and Japanese firms in the automobile industry, found that learning was the primary objective of both partners. Thus, a competitive strategic alliance makes it easier for the U.S. partner to become a potential supplier to the major Japanese automobile firms in the transplant operations. Hence, the following hypothesis may be made:

H_1: *The higher the dependence of the core firm on the affiliate firm in the home market, the greater the likelihood that the affiliate firm will follow the core firm into a foreign market by way of a competitive strategic alliance.*

In a *keiretsu* network, the relationship between the core firm and an affiliate firm is usually based on reciprocity of resources. As resources flow from the core firm to the affiliate firm, the affiliate becomes increasingly dependent on the core firm. These resources may take various forms, such as long-term purchase contracts, technical know-how, and plant or equipment and financial capital (Asanuma 2005). Probably the single most important source of support to an affiliate firm from a core firm is the purchase of the affiliate firm's products. Selling its products in a competitive market is a major source of uncertainty for many organizations, especially when there are many producers of a particular product and few purchasers. Often, a core firm enters into a long-term purchase contract with an affiliate firm and buys a significant portion of the affiliate firm's annual production. This helps the affiliate firm to cope with the uncertainty of selling its products.

Usually, small affiliate firms tend to deal primarily with a single core firm (Richardson, 2003). Due to this exclusive dealing (Odaka et. al. 2008), the affiliate firm's dependence on and asset specificity relative to the core firm increase, often leading to a situation of "virtual integration" (James 2005). It becomes harder for the affiliate firm to find a substitute for the core firm as its major customer. Often an affiliate firm invests in assets that are specifically related to meeting the needs of a particular core firm that purchases a major share of its total output (Helper 2000). Over time, such investments reinforce the dependency of an affiliate firm on the core firm. For example, in the automobile industry, an affiliate firm may invest in machines such as dies, metal punches, and other machine tools that produce products needed by a particular automobile manufacturer.

This high asset specificity increases the affiliate firm's cost of switching supply from one core firm to another (Porter 2000) because those assets will produce products that are consumed by only one automobile manufacturer. If the affiliate firm wants to supply another manufacturer, then it has to invest again in a new set of dies, tool, punches, and other equipment. Hence, the affiliate firm becomes heavily dependent on a particular core firm to sell its products and gets locked into an exclusive exchange relationship with that core firm.

The core firm often acts as a resource base to an affiliate firm. The core firm may provide affiliate firms with the necessary manufacturing technology, product know-how, managerial training, and sometimes plant, machinery, land, and buildings (Odaka et al. 2008). This type of support strengthens the relationship between the core firm and an affiliate firm and makes the relationship more than a mere buyer-supplier linkage. However, the core firm provides this kind of support mainly to those affiliate firms whose products play an important role in the manufacturing process of the core firm. The exact nature of the support from the core firm to an affiliate firm is usually determined based on the mutual needs of the core and affiliate firms.

In a *keiretsu* network, the core firm purchases a major share of an affiliate firm's output and provides it with various resources such as technical expertise, plant and machinery, and financial assistance. This makes an affiliate firm highly dependent on the core firm. When an affiliate firm enters a foreign market, it faces a high level of environmental uncertainty both in terms of resource acquisitions and output disposal. Often, an affiliate firm needs financial, managerial, and technical support from the core firm in the foreign market, along with an assurance that the core firm will purchase a major share of its output produced in that foreign market. The presence of the core firm in the foreign market and its willingness to provide support to the affiliate firm help the latter cope with environmental uncertainty. In many cases, affiliate firms prefer to have equitable participation by the core firm in order to signify continued support from the core firm. When the dependence of an affiliate firm on the core firm is high, such assurances of continued support from the core firm play a critical role in the choice of entry mode by the affiliate firm. Based on this discussion, the following hypothesis may be made:

H_2: *The greater the dependence of an affiliate firm on the core firm, the greater the likelihood that the affiliate firm will follow the core firm into a foreign market by way of a symbiotic strategic alliance.*

Methodology

The strategic alliance formation hypotheses developed in this study were tested empirically using data from 65 first-tier Japanese automobile support-

ing manufacturers that had entered the Malaysian automobile industry between 1995 and 2007. During this period, Japanese foreign direct investment surged, resulting in the entry of more than 120 auto ancillary manufacturers into Malaysia (Banerji and Sambharya 2006). For this study, we identified the seven major Japanese automobile assemblers (Toyota, Nissan, Honda, Mazda, Mitsubishi, Isuzu, and Suzuki) as the core firms.

The data on Japanese automobile and automobile parts companies, operating in both Japan and in Malaysia, were collected from three secondary sources: *The Structure of the Japanese Autoparts Industry* (3rd ed. 2006), published by Dodwell Marketing Consultants, Tokyo; *Japan's Expanding Asia Manufacturing Presence* (2008), published by the Japan Economic Institute, Washington D.C.; and *The Relationship between Japanese Auto and Autoparts Makers* (2007), published by Mitsubishi Research Institute.

Data on supply of parts, sales, stock ownership, capital structure, profits, and affiliation of ancillary suppliers were taken from The Structure of the Japanese Autoparts Industry (Dodwell 2006). Japan's Expanding Asia Manufacturing Presence (Japan Economic Institute 2008) provides data on the date of entry of the affiliate firm into Malaysia, the name of the Malaysian partner in cases of competitive strategic alliances, the percentage of ownership by each partner for every alliance formed, and the product range of the newly formed company in Malaysia. The Mitsubishi Research Institute (2007) study provided the information on multiple linkages between supporting firms and major automobile assemblers.

Measurement of Variables and Statistical Analysis

In this study, there are four independent variables, three control variables, and one dependent variable. Two of these four independent variables (sales index and capital index) relate to the dependence of the affiliate firm on the core firm. The other two independent variables (variety of products and importance of affiliate firm) relate to the dependence of the core firm on the affiliate firm. The three control variables relate to the level of internationalization of the firm, firm size, and firm profitability. The single dependent variable is a dichotomous one that describes the type of joint venture formed by the Japanese auto ancillary firm-either competitive strategic alliance or symbiotic strategic alliance.

Dependence of the core firm on the affiliate firm

To calculate dependence between a core firm and an affiliate firm and vice-versa, we identified the core firm for each affiliate firm based on the affiliate firm's *keiretsu* membership as identified by the report on the Japanese autoparts industry (Dodwell 2006). The dependence of a core firm on an affiliate firm was measured by two

variables: (1) importance of an affiliate firm to its core firm; and (2) variety of products purchased by the core firm from an affiliate firm.

The importance of an affiliate firm to the core firm was measured by the criticality of the products supplied by that affiliate firm to the core firm and the relative status of the affiliate firm in supplying those products. The information on the level of criticality of a product and status of the supplier firm was taken from Dodwell (2006) study. It was based on a maximum of 145 major ancillary components such as carburetors, fuel pumps, pressed body parts, and so forth.

Importance of affiliate to the core firm= $\sum$CnSn/n, where

C = criticality of the product supplied (min. 1, max. 3);
S = status of the affiliate firm (min. 1, max. 5); and
n = number of products supplied by a particular affiliate firm (min. 1, max. 145).

The higher the importance of the affiliate firm, the greater the dependence of the core firm on the affiliate firm. It is hypothesized that firms that place a higher level of importance on affiliate firms are more likely to form a competitive strategic alliance with a Malaysian based ancillary manufacturer and enter the Malaysian market.

The variety of products purchased by the core firm from an affiliate firm was measured by the number of different types of component a core firm purchases from a particular affiliate firm. The information on the variety products purchased from an affiliate firm also extracted from Dodwell (2006). The higher the variety of products, the greater the dependence of the core firm on the affiliate firm. We hypothesize that firms with higher levels of variety of products are likely to establish themselves in the Malaysian market by using a competitive strategic alliance.

Dependence of an affiliate firm on the core firm

Two variables were used to measure the dependence of an affiliate firm on a core firm: sales index and capital index. The sales index measures the support an affiliate firm gets from a core firm in selling its output. The capital index measures the financial support an affiliate firm gets from the core firm. The sales index indicates the percentage of total sales of an affiliate firm purchased by a core firm.

Sales Index= (sales to the core firm/total sales of the affiliate firm) X 100.

Because the sales index indicates a percentage, the scores on it range from 0 to 100. A lower value indicates less affiliate firm dependence on the core firm, while a higher value indicates high affiliate firm dependence on the core firm. We hypothesize that the

higher the sales index, the greater the possibility that an affiliate firm will enter the Malaysian market by way of a symbiotic strategic alliance.

The capital index similarly indicates the percentage of total capital of an affiliate firm that is held by the core firm in the *keiretsu*.

Capital Index= (capital of affiliate firm owned by a core firm/total capital of the affiliate firm) X 100.

Because the capital index indicates a percentage, the scores on it range from 0 to 100, with low values indicating less dependence of the affiliate firm on the core firm. We hypothesize that the higher the capital index, the greater the possibility of a symbiotic strategic alliance. The information on both the sales index and the capital index comes from Dodwell (2006).

Control variables

Three control variables were used in the study: previous level of internationalization, firm size, and firm performance. Previous research indicates that the level of internationalization (Juul and Walters 2007) often affects a firm's choice of mode of entry. The subsidiary index measured the internationalization of the affiliate firm. It was created by weighing manufacturing and trading subsidiaries by the ratio of three to two and adding them, respectively. Manufacturing subsidiaries were given more weight because they indicate a stronger international posture and commitment (Banerji and Sambharya 2006). The higher the subsidiary index, the greater the internationalization of the affiliate firm. The performance of an affiliate firm was measured by averaging its return on sales (ROS) prior to its entry into Malaysia. The higher the ROS, the better the performance of the affiliate firm. The information to calculate the subsidiary index and the ROS was taken from Dodwell (2006). The size of the firm was measured by the number of employees. Logarithmic transformation of the number of employees was performed to normalize the distribution of the variable.

The dependent variable in this study is the formation of the two different types of strategic alliance, namely, competitive strategic alliance (CSA) and symbiotic strategic alliance (SSA), for entering the Malaysian market. The dependent variable, being a dichotomous one, was coded with values 0 and 1. Which affiliate firms entered the Malaysian market and their date of entry were collected from the Japan Economic Institute update (2008). The basic procedure used to test the CSA/SSA formation was a logistical regression. This covered 65 Japanese automobile ancillary firms that entered the Malaysian market between 1997 and 2007 by way of a strategic alliance.

Results

Table 1 shows the summary statistics for all the independent variables used in the statistical procedures. Included in the table are means, standard deviations, and Pearson inter-correlations. A logistical regression is appropriate when the dependent variable is a dichotomous variable as in our case, in which the type of strategic alliance formation, was CSA/SSA, when a firm entered the Malaysian market. All of the four independent variables are continuous in nature. Table 2 shows the results of the logistical regression. We ran four models in the statistical analyses. In Model 1, only the control variables were entered. None of the control variables were significant. Next, the independent variables= variety of products, importance of affiliate firm to core firm, and the capital index were entered in Model 2. There is a marked improvement in the fit of the model with two variables: importance of affiliate firm and capital index are now significant as indicated by the Wald statistic. The Wald statistic is the ratio of the maximum likelihood estimate of the slope parameter to an estimated parameter of its standard error (Hosmer and Lemeshow 1989). Similarly, we entered three independent variables-importance of affiliate firm, variety of products, and the sales index-in Model 3. We entered capital index and sales index separately in Models 2 and 3 because they were significantly interrelated, not surprisingly (both measure the importance of core firm to affiliate firm); we wanted to disentangle their respective effects on type of strategic alliance formed. Both the importance of affiliate firm and sales index are significant. Finally, in Model 4, we entered all four independent variables-sales index and capital index as well as

Table 1. **Means, Standard Deviations, and Correlations for All Variables**

Variables	Means	Standard deviation	2	3	4	5	6	7
Firm size	7.39	1.07	.27	.59 ***	-.28 **	-.16	.31 **	.35 ***
ROS	.0215	.027		.46 ***	-.15	.02	.001	.64 ***
Subsidiary index	6.74	8.16			-.25 **	-.19	.10	.40 ***
Sales index	38.20	24.42				.53 ***	.09	-.04
Capital index	16.53	23.47					.24 *	.14
Importance of affiliate firm	5.98	4.21						.29 *
Variety of products	2.84	4.37						

*P<.10;**P<.05;***P<.01.

Table 2. **Results of logistical regression—Dependent variable CSAs/SSAs**

Independent Variables	Model 1	Model 2	Model 3	Model 4
ROS	1.72	1.03	2.18	1.44
Firm size	.74	.03	.05	.001
Subsidiary index	.44	1.19	.66	1.23
Capital index		8.45 **		5.69 **
Sales index			4.91	1.19
Variety of products		.03	.07	.03
Importance of affiliate firm		4.53 **	2.70	4.6 **
% classification correctly	59.09	68.18	68.66	71.21
—2 Log likelihood	84.84	72.03	78.15	71.21
Goodness of fit	65.26	63.06	63.99	62.75
Model chi-square	3.37	12.81	7.33	13.98
Significance	.30	.005	.06	.01
Improvement	3.37	12.81	7.33	13.98
Significance	.30	.005	.06	.01

Note: * P < .10. The number in columns is the Wald statistic; ** P < .05; *** P < .01.

variety of products and importance of affiliate firm. Models 2, 3, and 4 indicate a good fit, with the percentage of firms being classified correctly at ~71 percent.

The results indicate that financial support and capital ownership by the core firm are integral in the formation of a symbiotic strategic alliance between the affiliate firm and the core firm, when the affiliate firm enters a foreign market in which the core firm has already established a manufacturing presence. The significance of the sales index variable indicated that when the core firm is a major customer of the affiliate firm, the interdependence becomes very strong and often leads to a symbiotic strategic alliance. The third independent variable that was significant was importance of the affiliate firm to the core firm. This indicates that when the core firm is very dependent on the affiliate firm, the chances are high that the affiliate firm will enter the market by way of a competitive strategic alliance. These findings provide moderate support for the first hypothesis, which proposes that higher levels of core firm dependence on the affiliate firm will lead to formation of competitive strategic alliances. The results

also provide strong support for the second hypothesis, which proposes that higher levels of affiliate firm dependence will lead to the formation of symbiotic strategic alliances.

Discussion and Conclusion

The management of an organization's interdependence with the task environment is the key activity of top management (Thompson 1997). Maintaining co-alignment with the main stakeholders of the firm is paramount in order to sustain strategic competitive advantage. The present study investigated the dynamics of managing interdependence with one such key component of the task environment-the suppliers. Firms are aware that buyer-supplier relationships increasingly are becoming a focal point for achieving this competitive advantage due to the long-term advantages in terms of cost, trust, and reliability. We extend the literature by looking at the network effects on managing interdependence in the context of the Japanese automobile supporting industry.

Previous studies of strategic alliance formation have assumed that a firm is a "complete entity" and is free to choose any other firm as an alliance or venture partner. This study points out that this assumption is not necessarily true in the case of networks. The findings of this study indicate that strategic alliance formation, especially for Japanese companies, is strongly influenced by its *keiretsu* ties. The inter-firm relationships within a *keiretsu* evolve over a period of time and are reinforced by every transaction. The firms within a *keiretsu* become extremely dependent on each other to retain their competitive advantage. These dependent relationships have strong implications that affect with whom a *keiretsu* member will form a strategic alliance. These findings are extremely important because the success of Japanese firms is having a strong "isomorphic effect" (DiMaggio and Powell 2003) all over the world through the adoption of "continuous benchmarking" and "best practices" by competitors. During the 1990s and 2000s, many U.S.-based companies reorganized their supplier networks based on the Japanese model. There is evidence of the formation of *keiretsu*-style networks in Malaysian automobile firms (Dyer 2006). Currently, many European manufacturers are re-organizing their supplier networks based on the same model. The popularity of various enterprise integration programs indicates that this phenomenon has also spread to many industries in other countries.

The findings also indicate a mixed-motive relationship within a strategic alliance (Parkhe 2001). The support of the core firm in a network motivates many affiliate firms to move into foreign markets. Without this support, some of the affiliate firms would have never ventured abroad. Hence, many of the affiliate firms are very loyal to the core firm even at the foreign location. However, the formation of many strategic alliances with Malaysian based

ancillary manufacturers also indicates that given a chance, many affiliate firms would like to move away from their core firms, especially when they are confident that due to its dependence the core firm will continue to buy the necessary components from them at the foreign location.

This study extends the literature on strategic alliance formation and partner selection by identifying a new set of factors that deal with the interdependencies within the *keiretsu*: the dependence of the core firm on the affiliate firm, and the dependence of the affiliate firm on the core firm. These two factors have a strong impact on strategic alliance formation by the member firms of a *keiretsu*. The findings from the present study also add a new level of variables to the three-level categorization by Kogut and Singh (1998). They may be termed as "network-level" variables because they occupy a position between the industry-level variables and the firm-level variables. The use of the resource dependence framework to explain strategic alliance formation also extends the application of this framework in the international arena.

Based on prior research (Nishiguchi 2004), in this study we assumed that affiliate firms often deal exclusively with their core firms, and in most cases that is true. However, some affiliate firms had supply links with more than a single core firm. Such multiple linkages may affect the dependency relationship between the core and affiliate firm and thereby influence the strategic alliance partner selection process.

The significance of organizational learning has been identified recently in the joint venture literature (Parkhe 2001; Inkpen 2006; Lyles and Salk 2006). Even though the present study does not directly address this issue, organizational learning is very relevant to the topic. Most strategic alliances result in a "learning race" (Gulati 2005) between alliance partners, and strategic alliances formed within the context of the *keiretsu* are no exception. The ability to learn and absorb knowledge from an alliance partner often changes the resource dependence equation within the alliance and the consequent organizational bargaining power vis-à-vis the alliance partner.

Inkpen (2006) identified the importance of organizational learning in his study of U.S. and Japanese joint ventures in the automobile industry. Our study predicts some of the antecedents of organizational learning in strategic alliances. The intensity and magnitude of the interdependencies in *keiretsu* will determine what sort of strategic alliance a Japanese supplier will undertake. If the affiliate firm is dependent on the core firm, then the strategic alliance will be a symbiotic one and potential for learning will be limited. On the other hand, if the core firm is dependent on the affiliate firm, then the latter can use its leverage to form a competitive strategic alliance with a Malaysian partner. In the latter

situation, the potential is unlimited. A competitive strategic alliance would be a ideal for a technology-for-market type of exchange and would maximize learning for both the Japanese and Malaysian partners.

The findings of this study are also relevant to other industries in which the process technology is similar to that of the automobile industry. In industries such as computers, construction equipment, consumer electronics, farm equipment, heavy machinery, motorcycles, telecommunications, and transportation equipment, in which the final assembly depends on a network of ancillary suppliers, similar types of strategic alliance can be formed. Thus, the affiliate firm will have the option of choosing the type of strategic alliance (competitive or symbiotic) in its mode of entry into a foreign market, depending on its level of interdependence with the core firm.

Previous studies indicate that nearly 60 percent of all international joint ventures fail (Zahra and Elhagressy 2004). The median life of most joint ventures is only seven years, often ending with a sale by one partner to the other (Bleeke and Ernst 2001). It would be interesting to investigate the changing relationship between the partners and the endurance of these two types of strategic alliance. Being a part of the network may have an effect in prolonging the life of these two types of joint venture. The bargaining power of the venture partners often has an effect on their profitability (Yan and Gray 2004). Because the bargaining capacity of the Japanese ancillary producer firm will be different in these two types of strategic alliance, it may be worthwhile to examine the profitability of competitive strategic alliances and symbiotic strategic alliances.

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